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(54) **Control device of a radiator for heating a room**

(57) A control device of a radiator for heating a room, comprising a portable remote controller (1) having at least a first emitter (2) of an infrared control signal and a receiver (4) of the control signal present in an element of the radiator, the first emitter (2) being oriented in direction of the receiver (4) when the remote controller (1) is placed into its own housing (3) present in the element of the radiator, the remote controller (1) having a second emitter (12) of the control signal oriented in a different direction with respect to that of the first emitter (2) for controlling the radiator when the remote controller (1) is placed outside the housing (3).

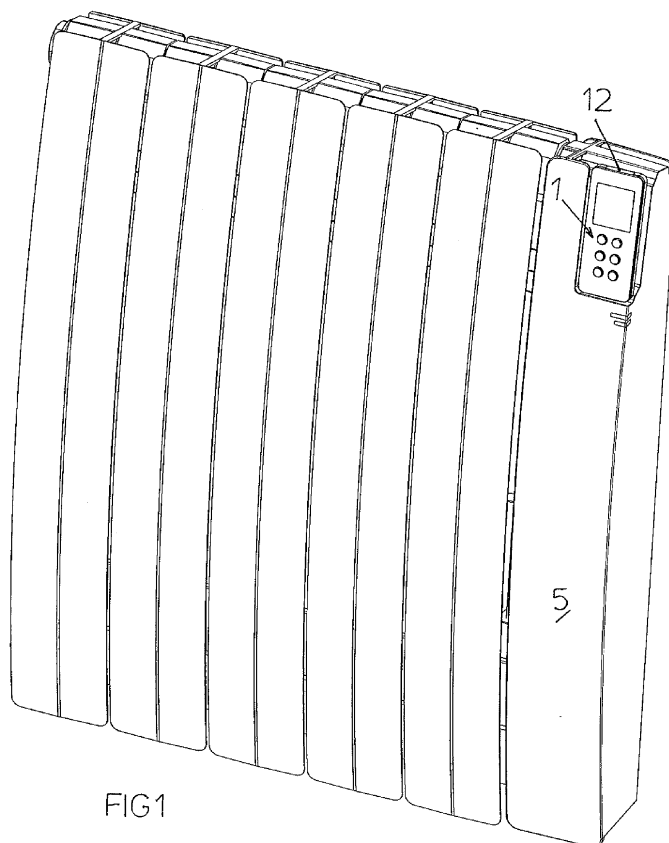


FIG 1

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Description

[0001] The present invention refers to a control device of a radiator for heating a room.

[0002] It is known the possibility to remotely control a radiator, particularly in a civil field, by means of a suitable remote controller. In case of loss or malfunctioning of the remote controller, the control of the radiator becomes a problem.

[0003] Often the control can be made efficiently only for a limited series of positions and angulations of the remote controller with respect to the infrared signal receiver included into the radiator.

[0004] The scope of the present invention is that to eliminate the drawbacks lamented from the known art, by realizing a control device of a radiator for heating a room, able to offer an efficient and broader series of positions and angulations of the remote controller with respect to the infrared signal receiver included into the radiator.

[0005] Regarding this aim, a scope of the invention is that to realize a control device of a radiator for heating a room that is simple, safe and cheap to construct, and which could be included into the radiator with limited variations of the productive process of the same.

[0006] Another scope of the invention is that to realize a control device of a radiator for heating a room able to incorporate perfectly from an aesthetic point of view with the radiator.

[0007] A further scope of the invention is that to realize a control device of a radiator for heating a room not including an increase of the total encumbrance of the radiator.

[0008] The aim and also these and other scopes according to the present invention are reached by realizing a control device of a radiator for heating a room according to claim 1.

[0009] Other features of the present invention are also defined in the following claims.

[0010] Advantageously, the radiator can be efficiently controlled by the remote controller, when it is engaged in its own housing and also when it is removed from its housing.

[0011] Advantageously the remote controller emits the control signal in two different directions, preferably opposed, such as the signal in a direction could make the control when the remote controller is away from its housing, whereas the signal in the opposite direction could make the control when the remote controller is engaged in its own housing.

[0012] Advantageously also the chance of a manual control is provided, by means of a suitable safety pushbutton, of the radiator in case of loss or malfunctioning of the remote controller.

[0013] Further features and advantages will be more evident from the following detailed description of the control device of a radiator for heating a room according to the invention, illustrated in an indicative way in the an-

nexed figures, in which:

Figure 1 shows a perspective view of a radiator having a control device according to the invention;

Figure 2 shows a perspective view of the radiator flank in Figure 1, in which the housing for the remote controller is realized, with the latter placed in its own housing;

Figure 3 shows a perspective view of the flank in Figure 2, without the remote controller; and

Figure 4 shows a perspective view of the remote controller in Figure 1.

[0014] Referring to the cited Figures, a radiator for heating a room is shown, for example an aluminum radiator working with oil or stone for the domestic heating.

[0015] The radiator is formed by a series of interconnected elements, one of which an end member, forming a flank 5, is not necessarily a radiant element.

[0016] The control device of the radiator comprises a portable remote controller 1 having at least a first emitter 2 of an infrared control signal, for example a first LED. The remote controller 1 has a keyboard and a visualizer.

[0017] In a radiator element, particularly its flank 5, a housing 3 of the remote controller 1 is present.

[0018] The control device also comprises a receiver 4 of the control signal present in the same element of the radiator in which the housing 3 is present.

[0019] The first emitter 2 is oriented towards the receiver 4 when the remote controller 1 is placed into the housing 3. The control signal emitted from the first emitter 2 is indicated by the directional arrow D1.

[0020] The remote controller 1 has a second emitter 12, for example a second LED, for emitting a control signal oriented in a different direction, preferably opposed to that of the first emitter 2, for controlling the radiator when the remote controller 1 is placed outside of its own housing 3. The control signal emitted from the second emitter 12 is indicated by the directional arrow D2. The first emitter 2 and the second emitter 12 are positioned on opposite faces of the remote controller 1.

[0021] In particular, in the illustrated option in which the remote controller 1 has a parallelepiped shape, the first emitter 2 is positioned at the rear face 9 of the remote controller 1, whereas the second emitter 12 is positioned at the front face 13 of the remote controller 1.

[0022] The housing 3 is formed by a surface recess of the radiator element 5, comprising at least a base 7 and a support ground 8 for the remote controller 1, and in particular also a support shoulder 14 of the remote controller 1.

[0023] The receiver 4 comprises an infrared lens able to convey the control signal in a transmission channel to the electronic card for managing the radiator.

[0024] The IR lens is preferably included in a safety control pushbutton 6 present in the radiator element 5.

[0025] The pushbutton 6 in particular is able to actuate a switch (not shown) which sends by commuting a control

signal to the electronic card, setting on default parameters the working regime of the radiator.

[0026] The pushbutton 6 protrudes over the base 7 of the housing 3 and carries the IR lens in such a position to optimize the reception of a signal control from the first emitter 2 when the remote controller 1 is placed into the housing 3. The control device of the radiator has also magnetic fixing means of the remote controller 1 into the housing 3.

[0027] The magnetic fixing means in shape for example of a magnet 11 are present at the ground 8 of the housing 3, preferably hidden behind the surface of the same.

[0028] The magnet 11 is able to interact with a ferromagnetic component 1 suitably formed or already existing, for example with the batteries of the remote controller 1.

[0029] The radiator control according to the invention is clear following what has been described and shown before and in particular substantially works as indicated below.

[0030] In the first control mode the remote controller 1 is away from its own housing 3. The user by handling the keyboard of the remote controller 1 regulates the working regime of the radiator. In this way the user, actuating the remote controller 1, oriented the second emitter 12 towards the receiver 4. The regulation is therefore done by the control signal D2 emitted by the second emitter 12.

[0031] In the second control mode the remote controller 1 is placed into its housing 3. The user actuating the keyboard of the remote controller 1 regulates the working regime of the radiator. In this case the first emitter 2 is directly oriented towards the receiver 4. The control is so done by the control signal D1 emitted by the first emitter 2.

[0032] In case of loss or mal functioning of the remote controller 1, the user can plan the working regime of the radiator according to default values, by actuating the safety button 6.

[0033] It is actually verified that the control device of the radiator is extremely versatile in order to operate in an efficient and safe way in a plurality of situations.

[0034] In practice the used materials, and also the dimensions, can be of any kind according to the needs and of the state of the art.

Claims

1. A control device of a radiator for heating a room, comprising a portable remote controller (1), displaceable in a housing (3) present in an element of said radiator, said remote controller (1) having at least a first emitter (2) of an infrared control signal and a receiver (4) of said control signal present in said element of said radiator, **characterized in that** said first emitter (2) is oriented in the direction of said receiver (4) when said remote controller (1) is into said housing (3), and **in that** said remote controller

(1) has a second emitter (12) of said control signal oriented in a different direction with respect to the first emitter (2), for controlling said radiator when said remote controller (1) is placed outside said housing (3).

2. The control device of a radiator for heating a room according to claim 1, **characterized in that** said second emitter (12) is oriented in the opposite direction with respect to that of said second emitter (2).

3. The control device of a radiator for heating a room according to one or more preceding claims, **characterized in that** said first emitter and said second emitter are placed at opposite faces of said remote controller (1).

4. The control device of a radiator for heating a room according to one or more preceding claims, **characterized in that** said element of said radiator is a flank (5).

5. The control device of a radiator for heating a room according to one or more preceding claims, **characterized in that** said receiver (4) comprises an infrared lens able to convey said control signal in a transmission channel to the electronic card for managing said radiator.

6. The control device of a radiator for heating a room according to one or more preceding claims, **characterized in that** said lens is included in a control safety pushbutton (6) present in said element of said radiator.

7. The control device of a radiator for heating a room according to one or more preceding claims, **characterized in that** said housing (3) is formed by a recess of said element of said radiator comprising at least a base (7) and a support ground (8) of said remote controller (1).

8. The control device of a radiator for heating a room according to one or more preceding claims, **characterized in that** said pushbutton (6) protrudes over said base (7) of said housing (3).

9. The control device of a radiator for heating a room according to one or more preceding claims, **characterized in that** said remote controller (1) is parallelepiped.

10. The control device of a radiator for heating a room according to one or more preceding claims, **characterized in that** it has fixing magnetic means of said remote controller (1) into said housing (3).

11. The control device of a radiator for heating a room

according to one or more preceding claims, **characterized in that** said magnetic fixing means are present at said ground (8) of said housing (3).

12. The control device of a radiator for heating a room according to one or more preceding claims, **characterized in that** said magnetic fixing means comprise a magnet (11). 5

13. The control device of a radiator for heating a room according to one or more preceding claims, **characterized in that** said magnet (11) is hidden behind the surface of said ground (8) of said housing (3), 10

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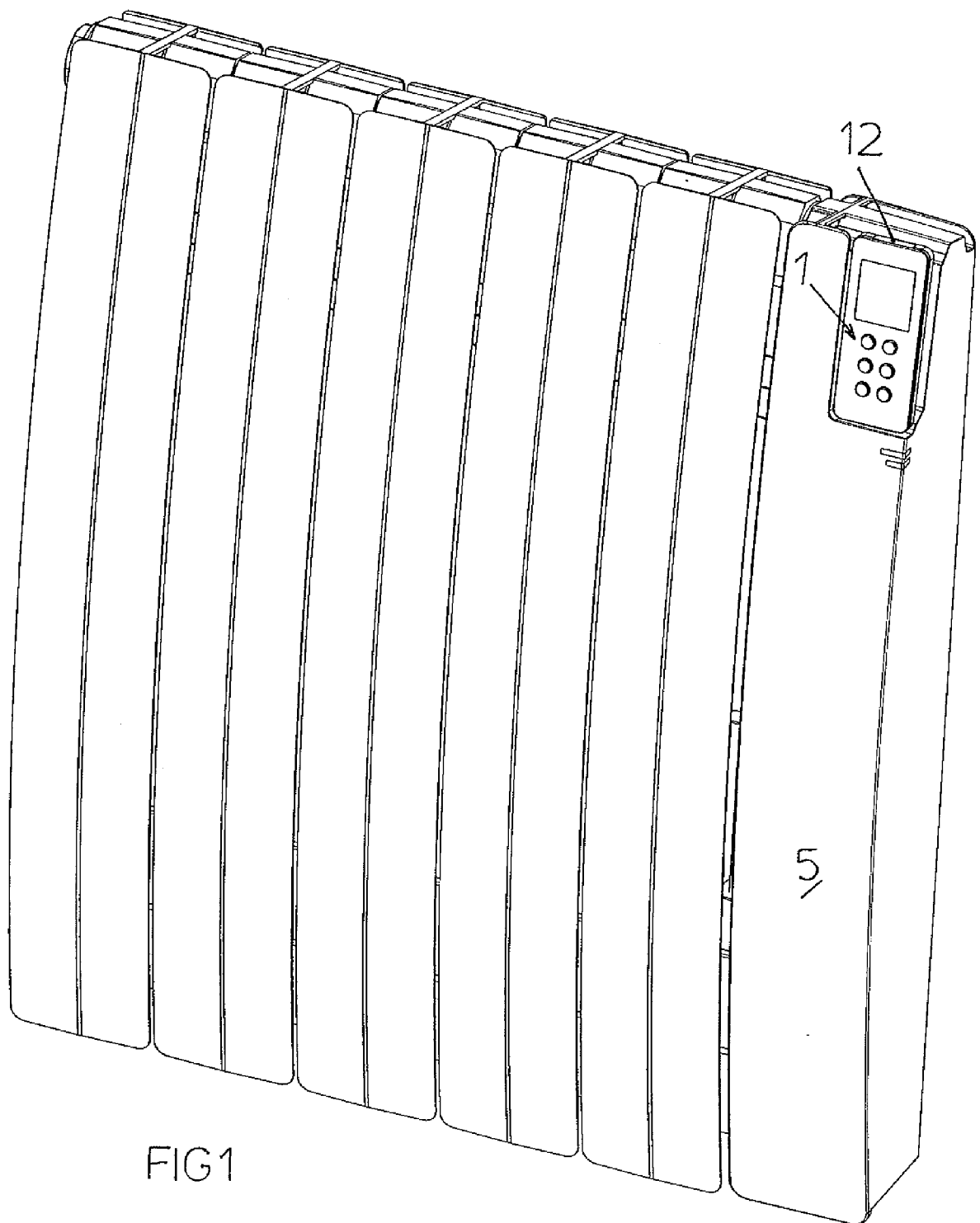


FIG1

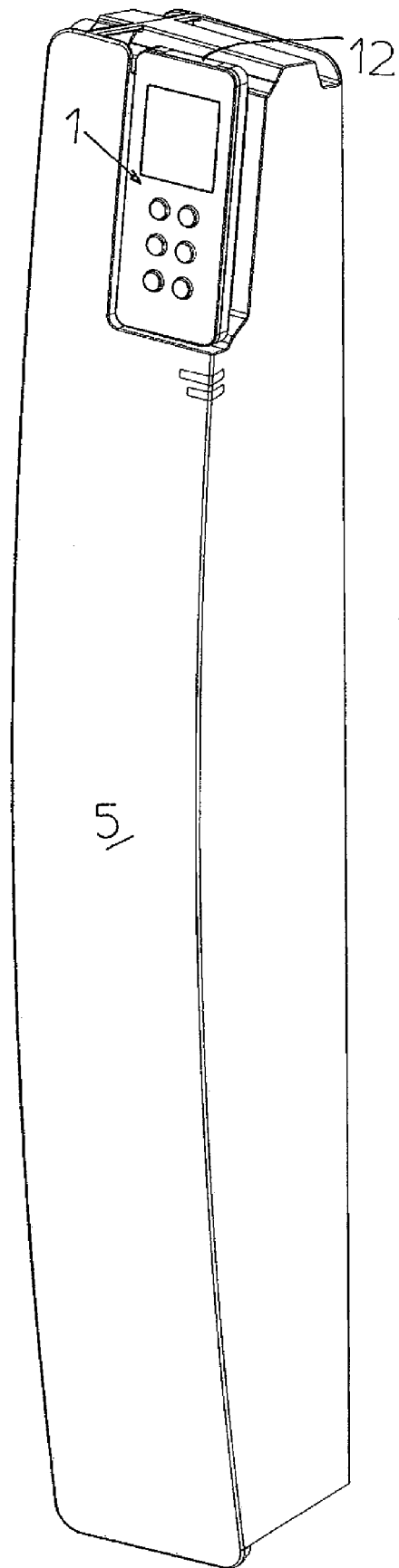


FIG 2

